PHYSICS B.S.  

<table>
<thead>
<tr>
<th>Name:</th>
<th>Date:</th>
<th>ID#:</th>
</tr>
</thead>
</table>

(Quarter offered: F=Fall, W=Winter, S=Spring, *= Not offered this year)

Note: All courses on check list must be taken for a letter grade

### INTRODUCTORY REQUIREMENTS

#### Calculus:
- MATH 19A (FWS) ___ OR 20A (F) ___
- MATH 19B (FWS) ___ OR 20B (W) ___

#### Vector Calculus:
- MATH 23A (FWS) ___ AND MATH 23B (FWS) ___

#### Physics:
- PHYS 5A/L (F) ___ + 5B/M (W) ___ + 5C/N (S) ___ + 5D (F) ___

**NOTE:** To declare Physics as a major, PHYS 5ABC must be completed with a GPA of 2.7 or higher.

#### Computer Programming:
- CMPS SC (*) ___ OR S1 (FW) ___ OR S5 (WS) ___ OR ASTR 119 (W) ___ OR PHYS 115 (S) ___

*Students may also satisfy the computer programming requirement by demonstrating their knowledge of programming to a faculty member designated by the Physics department.

### ADVANCED REQUIREMENTS

**14 courses and a senior thesis**

#### Modern Physics:
- PHYS 102 Modern Physics (W) ___

#### Mechanics:
- PHYS 105 Mechanics (F) ___

#### Electricity/Magnetism/Optics:
- PHYS 110A Electricity, Magnetism, and Optics (W) ___
- PHYS 110B Electricity, Magnetism, and Optics (S) ___

#### Thermodynamics:
- PHYS 112 Thermodynamics and Statistical Mechanics (W) ___

#### Math Methods:
- PHYS 116A Mathematical Methods in Physics (W) ___
- PHYS 116B Mathematical Methods in Physics (S) ___
- PHYS 116C Mathematical Methods in Physics (F) ___

#### Laboratories:
- PHYS 133 Intermediate Laboratory (FW) ___
- PHYS 134 Physics Advanced Laboratory (WS) ___

#### Quantum Mechanics:
- PHYS 139A Quantum Mechanics (S) ___

#### General Electives:
- TWO from the following...
  - Any PHYS course from 100-180 ___
  - ASTR 111 Order-of-Magnitude Astrophysics (F) ___
  - ASTR 112 Physics of Stars (W) ___
  - ASTR 113 Introduction to Cosmology (S) ___
  - ASTR 117 High Energy Astrophysics (*) ___
  - ASTR 118 Physics of Planetary Systems (*) ___

*In some cases, the elective requirement may be satisfied by an approved upper-division science or engineering course.

### DISCIPLINARY COMMUNICATION REQUIREMENT

Satisfied by successful completion of PHYS 182 and the senior thesis.

**NOTE:** This requirement MUST be completed at UCSC.

### COMPREHENSIVE REQUIREMENT

#### PHYS 182 Scientific Communication for Physicists (FW) ___
- Senior Thesis on topic of choice ___

**Note:** Courses appearing in more than one category may fulfill only one requirement.